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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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09/311,718 05/14/99 SONG

J 06/92.0085
EXAMINER

022930 MMC2/1024
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ART UNIT PAPER NUMBER
ELEVEN, I

DATE MAILED:
2001

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Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

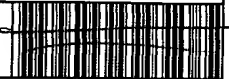
Office Action Summary

Application No.
09/311,718

Applicant(s)
Song et al.

Examiner
Dung Nguyen

Art Unit
2871



-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on _____
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-51 is/are pending in the application.
- 4a) Of the above, claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-12, 17-22, 27, 30, 35-40, and 44-51 is/are rejected.
- 7) ☒ Claim(s) 13-16, 23-26, 28, 29, 31-34, and 41-43 is/are objected to.
- 8) ☐ Claims _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are objected to by the Examiner.
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

- 13) ☒ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).
- a) ☒ All b) ☐ Some* c) ☐ None of:
- ☒ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

*See the attached detailed Office action for a list of the certified copies not received.

- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

- 15) ☒ Notice of References Cited (PTO-892)
- 16) ☒ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 17) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s). 6
- 18) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 19) ☐ Notice of Informal Patent Application (PTO-152)
- 20) ☐ Other: _____

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DETAILED ACTION

Specification

1. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1, 40 and 47-51 are rejected under 35 U.S.C. 102(b) as being anticipated by Koike, US Patent No. 5,473,455.

The above claims are anticipated by Koike et al. figure 50 which disclose a liquid crystal display (LCD) device comprising:

- a first substrate (10) having an electrode (24) and a protrusion (26p);
- a second substrate (16) having an electrode (21) and an aperture (22d);
- a liquid crystal layer (20).

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Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 2-12, 17, 22, 27, 30, 37-39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Koike et al., US Patent No. 5,473,455.

Regarding claims 2-3, Koike et al. disclose the claimed invention as described above except for the chiral nematic liquid crystal layer. One of ordinary skill in the art would desired to add a chiral agent in the Koike et al. nematic liquid crystal material since it is a common practice in the art to attain an uniform twist in a liquid crystal layer.

Therefore, it would have been obvious

Regarding claims 4 and 17, Koike et al. disclose the claimed invention as described above except for the polarizer sandwiching the LCD cell. It would have been obvious to one skilled in the art to form a polarizer attached to an LCD cell surfaces as required for twisted nematic liquid crystal material to work.

Regarding claims 5-10, Koike et al. disclose the claimed invention as described above except for compensation films. It is known in the art to form a compensation film (e.g., retarder film) on the side of an LCD cell for correcting light from the light source (e.g, ambient light or backlight) through the LCD cell. Therefore, it would have been obvious to one skilled in the art

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at the time of the invention was made to form a compensation films on the outer surface of an LCD cell in order to improve an LCD characteristics as mention above.

Regarding claims 22, 27 and 30, Koike et al. disclose the claimed invention as described above except for the crossing shape of the aperture. It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the Koike et al. aperture having a crossing-shape since the Examiner takes Official Notice of the equivalence of the crossing-shape aperture and the Koike et al. aperture for their use in the LCD art and the selection of any of these known equivalents to improve the behavior of a liquid crystal layer at the boundary between domains would be within the level of ordinary skill in the art.

Regarding 37-39, Koike et al. disclose the claimed invention as described above except for the black matrix. One of ordinary skill in the art would have desired to form a black matrix films overlapping the aperture/protrusion to avoid leaking light in a display region. Therefore, it would have been obvious to one skilled in the art to form a black matrix film overlapping the Koike et al. aperture/protrusion in order to improve an LCD contrast.

6. Claims 1-12, 17-22, 27, 30, 35-40, 44-51 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hirata et al., US Patent No. 5,953,093 , in view of Koike et al., US Patent No. 5,473,455.

Regarding the above claims, Hirata et al. disclose an LCD (figures 22, 25 and 28) having a plurality of apertures (48) or protrusions (47) forming on the counter substrate and the pixel substrate (see example 10), wherein each aperture/protrusion having a width and spacing

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therebetween as claimed. However, Hirata et al. do not disclose the plurality of apertures forming on one substrate and the plurality of protrusions forming on the other substrate.

Koike et al. do disclose an LCD having protrusions which formed on one substrate as well as apertures which formed on another substrate (see figure 50). Therefore, it would have been obvious to one skilled in the art at the time of the invention was made to form a protrusion on one substrate and an aperture on another substrate as shown by Koike et al. in order to improve the behavior of a liquid crystal layer at the boundary between two domains (col. 20, ln. 41).

Allowable Subject Matter

7. Claims 13-16, 23-26, 28-29, 31-34 and 41-43 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Dung Nguyen whose telephone number is (703) 305-0423. The fax phone number for this Group is (703) 308-7722.

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Any information of a general nature or relating to the status of this application should be directed to the group receptionist whose telephone number is (703) 308-0956.

DN
10/22/2001



TOANTON
PRIMARY EXAMINER

Attachment for PTO-948 (Rev. 03/01, or earlier)

6/18/01

The below text replaces the pre-printed text under the heading, "Information on How to Effect Drawing Changes," on the back of the PTO-948 (Rev. 03/01, or earlier) form.

INFORMATION ON HOW TO EFFECT DRAWING CHANGES

1. Correction of Informalities -- 37 CFR 1.85

New corrected drawings must be filed with the changes incorporated therein. Identifying indicia, if provided, should include the title of the invention, inventor's name, and application number, or docket number (if any) if an application number has not been assigned to the application. If this information is provided, it must be placed on the front of each sheet and centered within the top margin. If corrected drawings are required in a Notice of Allowability (PTOL-37), the new drawings **MUST** be filed within the **THREE MONTH** shortened statutory period set for reply in the Notice of Allowability. Extensions of time may NOT be obtained under the provisions of 37 CFR 1.136(a) or (b) for filing the corrected drawings after the mailing of a Notice of Allowability. The drawings should be filed as a separate paper with a transmittal letter addressed to the Official Draftsperson.

2. Corrections other than Informalities Noted by Draftsperson on form PTO-948.

All changes to the drawings, other than informalities noted by the Draftsperson, **MUST** be made in the same manner as above except that, normally, a highlighted (preferably red ink) sketch of the changes to be incorporated into the new drawings **MUST** be approved by the examiner before the application will be allowed. No changes will be permitted to be made, other than correction of informalities, unless the examiner has approved the proposed changes.

Timing of Corrections

Applicant is required to submit the drawing corrections within the time period set in the attached Office communication. See 37 CFR 1.85(a).

Failure to take corrective action within the set period will result in **ABANDONMENT** of the application.